a review of A faithful 2-dimensional TQFT. by Gajovic, S.; Petric, Z.; Telebakovic Onic, S.

Gajović, S.; **Petrić, Z.**; **Telebaković Onić, S.**
A faithful 2-dimensional TQFT. (English) Zbl 07150962
Homology Homotopy Appl. 22, No. 1, 391-399 (2020).

K. Došen and *Z. Petrić* [Algebra Colloq. 19, 1051–1082 (2012; Zbl 1294.18002)] gave a result, inspired by [*R. Brauer*, Ann. Math. (2) 38, 857–872 (1937; JFM 63.0873.02)], claiming faithfulness of a 1-dimensional TQFT (Topological Quantum Field Theory). The third author of this paper has succeeded in showing that every 1-dimensional TQFT, over a field of characteristic 0, is faithful ["On the faithfulness of 1-dimensional topological quantum field theories", Preprint, arXiv:1706.02763].

This paper shows that there is a faithful 2-dimensional TQFT, meaning that there is a commutative Frobenius algebra abiding by only the qualities in the language of multiplication, unit, comultiplication and counit which hold in every commutative Frobenius object. It is not known whether there exists a faithful n-dimensional TQFT for $n \geqslant 3$.

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MSC:

18A22 Special properties of functors (faithful, full, etc.)
18D10 Monoidal, symmetric monoidal and braided categories (MSC2010)
15A69 Multilinear algebra, tensor calculus
57R56 Topological quantum field theories (aspects of differential topology)

Keywords:

Frobenius algebra; topological quantum field theory; faithful functor; Zsigmondy's theorem

Full Text: DOI